

with the symptoms a marked fall in blood pressure, that he is then justified in the use of digitalis. If the heart can be supported and the circulation maintained long enough, there is a chance for the patient to make a recovery. On the other hand I feel that if the patient gets any relief from the use of vasodilators, these should be used either alone or in conjunction with digitalis. I regard it as particularly ominous for a patient who has had symptoms of coronary artery stroke to develop an arrhythmia of any type during the acute phase. These patients appear to be doing fairly well, have no more pain, and die very, very suddenly.

Another dangerous type is one in which the patient has recovered from his attack of pain, feels more than ordinarily well, has no distress of any kind, and yet his pulse rate is fast, over 100. These patients frequently drop dead the first time you let them stand up or go to the toilet. If a patient has had symptoms of coronary artery stroke, has apparently recovered and in the first few weeks of his recovery has a fast pulse rate, over 110, keep him in bed.

Shall a man smoke or shall he not? I believe nicotine is a cardiac muscle irritant; for that reason it is probably best for the patient to discontinue the use of tobacco and only resume its use very gradually, if at all.

FRANKLIN R. NUZUM, M. D. (Santa Barbara Cottage Hospital, Santa Barbara.—I, too, would like to add my commendation of Doctor Langley's paper. I would like to add a further word concerning the changes in the heart muscle that follow an acute blocking of one of the coronary vessels. An anemic infarct is the result. The size of the infarcted area depends on the size of the occluded vessel. A very firm, strong heart muscle within twenty-four to forty-eight hours following an occlusion becomes at first light yellow in color and later dark red; its softness is surprising, and the ease with which one may thrust his finger or a blunt probe through such an infarcted area makes one wonder why many more of these patients do not die of a rupture through the infarcted area.

In some more than six hundred reported instances in the literature, of rupture of the heart wall, the area of infarction has, in over 95 per cent, involved the anterior descending branch of the left coronary artery, *i. e.*, that vessel which supplies the anterior wall of the left ventricle and a portion of the ventricular septum. In these six hundred instances death resulted from a rupture through the infarcted area, and the exact location of the infarct and the obstruction in the coronary artery were demonstrated by postmortem examination. Since the anterior wall of the left ventricle is usually infarcted, the fibrinous adhesions which form over this area rub upon the anterior surface of the pericardial sac, producing a friction sound. This friction, when searched for, is very frequently present. It develops ten to eighteen hours after the occlusion of the coronary vessel. It usually disappears within ten to twenty-four hours after it first becomes audible. When present it is the most striking point in the physical examination in proving the diagnosis of a coronary occlusion. Temperature, a leukocytosis, and a so-called coronary T wave in the first or second lead of the electrocardiogram complete the clinical findings and indicate a large area of infarction of the myocardium.

When small branches of the coronary arteries are occluded, the areas of infarction may be minute. These instances are often more difficult of diagnosis, but are equally important clinically, since, as has been stated, ventricular fibrillation may follow, and this type of disturbed rhythm results in death.

That rupture of large infarcted areas occurs more commonly than was generally believed is becoming recognized. I personally have nine pathological specimens in which such a rupture occurred. In each of these instances the patient had gotten out of bed within twenty-four to forty-eight hours following the vessel occlusion and death was sudden.

The ability of nature to repair such an infarcted area is equally impressive. Large, firm, fibrous scars,

involving particularly the left ventricular wall, in some instances measuring several centimeters in length and breadth, attest to the importance of keeping such a patient at bed rest until complete fibrosis has had time to take place.

EUGENE S. KILGORE, M. D. (490 Post Street, San Francisco).—Clinical interest in coronary thrombosis is rightly focused mainly on diagnosis; and it is gratifying that intelligent study now usually establishes the diagnosis during life, whereas a few years ago it was very exceptional for this to occur. Doctor Langley has illustrated the value of electrocardiography and the usual symptoms and physical signs.

With little more additional data the electrocardiogram or the pericardial friction sound may establish the diagnosis. More frequently, however, a careful study of symptoms alone will be nearly or quite decisive, and conversely, and which is most important, a superficial attention to symptoms is usually responsible for the occasional costly error of mistaking coronary thrombosis for an acute abdominal condition.

Pain is often absent, or it may be mild or excruciating. Most commonly substernal, it may be precordial, diffusely over chest and back, or occasionally only epigastric. It may or may not radiate—usually to the left arm, especially under the arm to the elbow, wrist or radial distribution in the hand; or to the right arm or both arms, the neck, jaw, or occiput. It is variously described (according to preconceptions of the patient) as "pleuritic," "indigestion," etc.; but more particular questioning will often bring out the quality of pressure—"vise-like," "constriction about the wind-pipe," "internal gas pressure," "petrified feeling," etc., or it may be simply indescribable. It is not colicky. It is not lightning-like in onset, but usually has a distinct crescendo period. It may be worse after eating and somewhat relieved (if not too severe) by belching. It is likely to come on without effort and be unrelieved by rest, by nitrites, and by small or moderate doses of morphin. Especially in the cases with pain under the lower sternum or in the epigastrium, belching is frequent, and nausea and vomiting not uncommon. These symptoms, with pain, fever, and leukocytosis, create at times a very perplexing diagnostic problem; and it is here especially that a careful scrutiny of the heart by all methods including the electrocardiograph is most important.

## THE SURGERY OF TUMORS OF THE BLADDER\*

By FRANK HINMAN, M. D.  
San Francisco

DISCUSSION by Benjamin H. Hager, M. D., Los Angeles; James F. Percy, M. D., Los Angeles; R. L. Rigdon, M. D., San Francisco.

BEFORE 1910, when Edwin Beer introduced fulguration, the only treatment available for a bladder tumor was surgical, and the results were poor and discouraging for both malignant and benign growths. There have been no epochal advances of surgical technique since then. Nevertheless we are able today to accept the responsibility of treatment of such a case with a certain sense of confidence which, however, is far from complete. The newest agent, radiation, is bolstered high above its ability by a hopeful enthusiasm, and we seem now to have reached a dead level of advance in the cure of vesical malignancy.

### TREATMENT METHODS

Perhaps the next rise will follow improvement of surgical method, but discussion of this is pos-

\* Read before the Urological Section of the San Francisco County Medical Society, January 29, 1929.

sible only in relation to the two epochal advances that give us our present advantage in the treatment of tumor of the bladder. Otherwise we might become surgical enthusiasts, revert to the hopeless state before 1910, and attempt to treat all tumors surgically. This would be even worse, in view of our definite advances, than to follow the advice of some of our radium optimists and eschew all surgery. The surgery of tumors of the bladder, therefore, must be presented in relation to these other two well-recognized methods of treatment, fulguration and radiation. One must know what can be accomplished with each one of these three methods and which one of them to apply in a given case. Urologists disagree radically about both points. One small group claim wonders for radium, the majority are doubters. Another small number extol fulguration and deep diathermy, methods which are often scoffed at by the radiologists. A third group cling to the idea that where fulguration fails, surgery is the hope of the future. Yet out of all this confusion some order may be gotten. The writer will consider the subject on the basis of his own personal experience; and will then take up the viewpoints of others.

PRIMARY CONSIDERATION

In the first place some uniform method of choice of treatment is required. The same plan cannot be applied to all types and conditions of tumors. The pathologic differentiation into epithelial, mesothelial, and embryonal groups of various types has no clinical value. We now know that the processes of change of both benign and malignant tumors of the bladder are fundamentally the same. All bladder tumors are potentially malignant, but there is considerable difference in

the degree of malignancy; for example, of a simple papilloma, a papillary carcinoma and a squamous cell infiltration. Broders has received some clinical support of his histologic classification of tumors into four grades on the basis of degree of malignancy as determined by the character of cellular changes and mitotic activity. Grades I and II being relatively benign, and Grades III and IV, highly malignant. In practice the value of this classification depends on the correctness of the assumption that all cells of any one tumor will show the same grade of malignancy. Examination of a specimen removed from an outlying polyp would have to give the same information as from any other portion, even from the infiltrating base, if these cells ran true to type. But there must be so many exceptions to this rule as to largely nullify its value. Another objection to placing entire confidence in such a classification is the fact that many times even the very benign Grade I tumors have been found to infiltrate the bladder wall extensively, a characteristic recognized clinically as indisputable evidence of marked malignancy.

CYSTOSCOPIC FINDINGS AS A GUIDE TO SURGERY

The only reliable guide to choice of treatment, the only one of immediate and practical value, is information obtained by cystoscopic study. A knowledge of the type, position, size, extent and number of tumors in a bladder, irrespective of the exact pathology, is a safe foundation on which to outline a plan of treatment. Not always can all of these facts be determined at the first cystoscopy. Bleeding may obscure the picture. Smaller tumors may be hidden behind larger tumors which are in the foreground. The plan of treatment may

DIAGRAM 1.—Cystoscopic Classification of Bladder Tumors

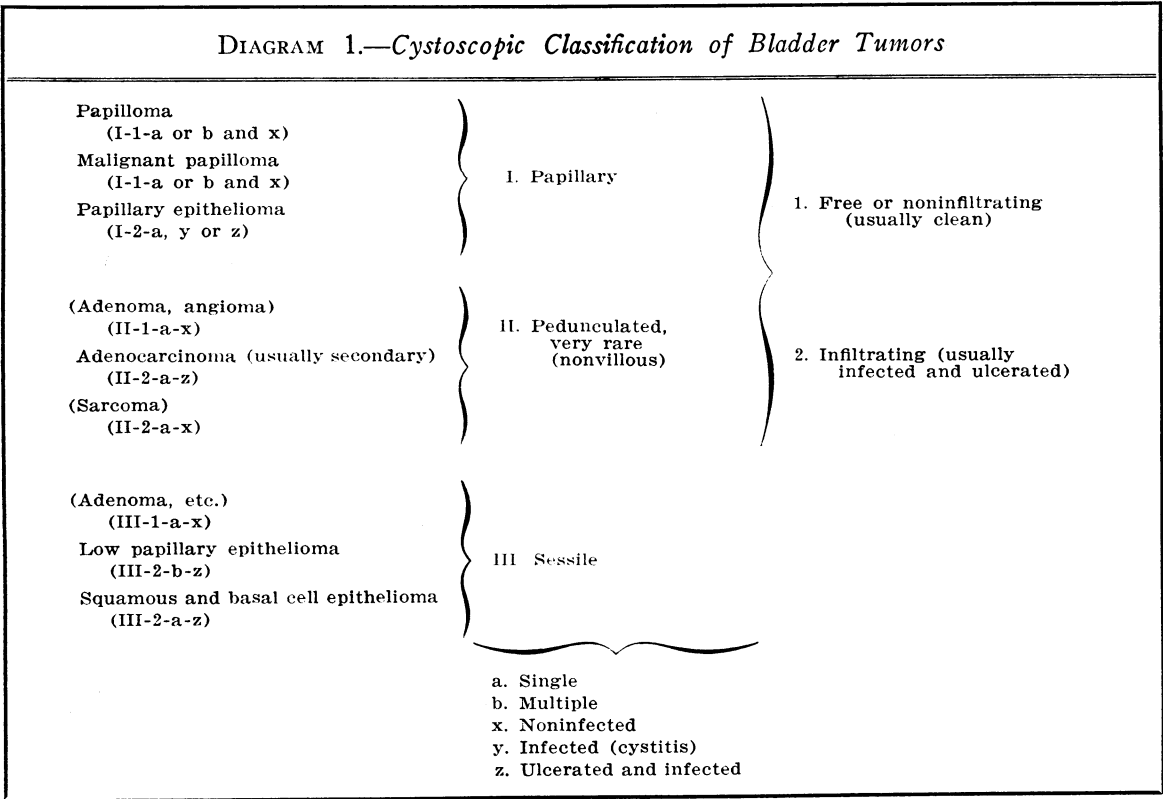


TABLE 1.—*Cystoscopic Analysis of 172 Personal Cases of Bladder Tumors*

		Single	Multiple	Clean	Infected	Ulcerated	Total
Group I.							
Papillary tumors:	1. Free	17	50	37	29	0	67
	2. Infiltrating	37	13	1	19	30	50
							117
Group II.							
Pedunculated:	1. Free	(2)			(1)	(1)	(2)
	2. Infiltrating	(10)	(secondary)				
Group III.							
Sessile:	1. Free						
	2. Infiltrating	17	(6 secondary)		14	5	11
							130
Cases not grouped because of incomplete descriptions							26
Group IV.		Prostate	Sigmoid	Ileum	Rectum	Vagina	
Secondary tumors:		6	4	1	4	1	16
							172
Summary: Primary bladder tumors 130							
I. Papillary				117			
II. Pedunculated				12 (10 secondary)			
III. Sessile				17 (6 secondary)			
				146 (16 secondary)			

have to be tentative and a change of attack clearly be contemplated should the result of the initial treatment prove disappointing. But the cystoscopic picture in conjunction with other clinical facts, such as the history and physical findings, particularly those of rectal or vaginal palpation, renal function and x-ray exploration, is the first guide of treatment.

Cystoscopically two types of tumor usually are quite easy of recognition, the papillary tumor and the flat, smooth-surfaced, infiltrating tumor. Between these two extremes there are all sorts of gradations, many of which are difficult of interpretation, but for practical purposes the following rather diagrammatic classification will serve as a guide to initial treatment. It is based on this objective distinction, that a bladder tumor may be papillary and villous, may project intravesically but with a nonvillous, smooth surface, a very rare tumor, or be so flat and broad that its surface is almost on a level with the bladder wall.

These types may be called papillary I, pedunculated II, and sessile III. Any one may be free on its pedicle and noninfiltrating, may have an ulcerated surface, or show infiltration of the neighboring bladder wall. The association of ulceration or infiltration is a reliable indication of malignancy. They may be single or multiple and with or without cystitis. The free, clean, villous growth is almost certainly a papilloma, the infiltrating flat tumor a malignant epithelioma, and a careful study of the associated conditions, as outlined in Diagram 1, will enable fairly accurate inference of the intermediate groups.

#### COMMENT ON TABLE I

The above analysis (Table 1), dealing with a cystoscopic analysis of 172 cases of bladder tumors, is an attempt to group the writer's own

cases according to the scheme of cystoscopic classification in Diagram 1. But it is open to criticism because the method has actually been in use by him only recently, earlier cases having been grouped by the description entered in their hospital or office records, which are often incomplete. Therefore subsequent pathologic findings cannot be taken as any criterion of the accuracy of cystoscopic observations and interpretations or of the value of the above scheme. However, it well illustrates the basis of choice of treatment which has been uniform in our clinic for many years, and will be of interest in connection with the results obtained by the treatment chosen on this basis.

Of 117 cases of papillary tumors there were sixty-seven cases in whom the tumors had a free pedicle; a single papilloma in seventeen cases; multiple papillomata in fifty; and fifty cases in which infiltration of the bladder wall was diagnosed. Thirty-seven of these infiltrating tumors apparently were single tumors, but this no doubt is a frequent error, inasmuch as the majority of these tumors were so large as to cover a considerable area and, although giving the impression cystoscopically of one solid mass, were often no doubt multiple and confluent.

If tumors of the bladder that are secondary to an extension from a neighboring malignancy, as of the bowel, prostate, or vagina, are excluded, only two of the 172 cases showed pedunculated growths and in neither of these was there a pathologic report. One of them recurred as a papilloma, so that it is most likely that the observation of an original pedunculated tumor is at fault; and the other responded to fulguration, which would tend to disprove its having been a true pedunculated tumor. Secondary growths are commonly adenocarcinoma, a very exceptional primary tu-

TABLE 2.—Treatment Used in 172 Bladder Tumors

TYPE OF TUMOR CYSTOSCOPICALLY	NOT TREAT- ED		FULGURATION						RESECTION						CYSTOTOMY						CYSTECTOMY						Total		
			Alone		With Radium		Free		REIMPLANT				Both		With Radium		With Diathermy		Both		FIRST STAGE		SECOND STAGE						
									NEPH- ROSTOMY		URETERS TO:																		
	L	D	L	D	L	D	L	D	L	D	L	D	L	D	L	D	L	D	L	D	L	D	L	D					
I. Papillary																													
1. Free: Benign & Malignant			61	2	4																					67			
2. Infiltrating		1	9	4	4	6	2	6					1			1	3	2	4		#1 #3		#2		#1 #4 #5	#2	48		
Recurrent								2																		2			
II. Pedunculated																													
1. Primary			1				1																			2			
2. Secondary		6		1		2							1													10			
III. Sessile		1					1	1		2	1		1		2				1				#6		#6	11			
Secondary		2				1									2									#7		6			
IV. Not Stated	2	3	11		5	1								1							#8				#8	24			
Recurrent	1						1																			2			
TOTAL	3	13	82	7	13	10	4	10		2	1		2	2	4	1	3	2	5	8 cases all dead									
	16		112						19						17						8								172

L—Living.  
D—Dead.

mor of the bladder, and vesical adenocarcinomata are commonly pedunculated in form. The great rarity of primary pedunculated growths, as shown by this and other analyses, other than adenocarcinoma, makes the finding of a true pedunculated tumor very suggestive of its being secondary to some adenocarcinoma of a neighboring organ, but it must be remembered that such a secondary invasion may appear as a flat ulcer (six cases).

There were seventeen typically flat sessile and infiltrating growths, all infected and the majority ulcerated. These were squamous or basal cell epitheliomata or secondary adenocarcinomata.

Twenty-six cases of bladder tumor are not grouped in the above classification because of the incompleteness of the cystoscopic records. Most of them, however, are analyzed later with respect to treatment.

PLAN OF TREATMENT

Cystoscopic findings outline treatment on the following plan:

*Fulguration Group.*—All papillary villous growths are subjected to fulguration. One thorough treatment usually demonstrates the probabilities of success by this method. As a rule during fulguration partially coagulated portions of the papillary mass come away on the fulguration tip and are satisfactory specimens for histologic study. But the clinical result of this initial treatment is of far more value than the pathologic report. Case after case of malignant papilloma and papillary carcinoma have been cured by fulguration alone. This fact should be emphasized. No credit can attach to the relief of such a case by radiation or surgery either alone or in combination. To the writer's mind there is no reason to subject these tumors to open cystotomy because

they are large or multiple. Furthermore the cystoscopic approach has the advantage of repetition as often as desired. Persistent repeated endovesical fulguration will often accomplish more than massive transvesical fulguration or diathermy. So satisfactory are the results of fulguration for the majority of vesical tumors that few would hesitate to choose it could they have but one of the three methods (fulguration, radiation, surgery) at their disposal.

*Radiation and Surgery Group.*—If initial fulguration of a papillary villous tumor fails to produce a definite and marked change, then persistence in its use will probably fail of effecting a cure. Such failures occur with marked infiltrating growths. The plan of attack now lies between radiation and surgery. If the tumor is resectable, surgery is preferable even though a ureter must be transplanted. If the tumor is so large or so situated that successful resection seems unlikely, radiation or transvesical diathermy can be elected. No uniform plan of radiation or transvesical diathermy can be outlined. There is too much difference of opinion of their respective merits. Tumors differ markedly in their degree of response. Many highly malignant tumors are radio-sensitive; less malignant ones often radio-resistant. Knowing a tumor to be radio-resistant, surgery would be the only hope.

If the tumor is of the low infiltrating papillary type with crater ulcer or is flat and sessile (Type III), initial fulguration is useless, and radiation or surgery must be used.

COMMENT ON TABLE 2

A brief review of the writer's own cases will illustrate this plan of treatment, as outlined in

Table 2, covering treatment used in 172 bladder tumors.

Fulguration alone was used in sixty-three non-infiltrating tumors, fulguration and radium in four; with satisfactory results in all but one. In that patient, vesical perforation occurred with extraperitoneal extravasation, relieved by immediate suprapubic drainage, but death occurred two weeks later from embolism. Fulguration alone was used in thirteen patients for infiltrating papillary carcinoma; fulguration and radium in ten patients. Four of the former and six of the latter are dead. Fulguration alone was used in eleven of the twenty-six cases in which the cystoscopic record is incomplete.

Radium alone was used on six patients for infiltrating papillomata, all of whom are dead, and in one patient with squamous cell epithelioma who is dead. Also in five patients in whom the type of tumor is not stated, who are all living.

Surgical treatment has been used in this series of 172 cases in forty-four; partial cystectomy or resection in nineteen; cystotomy with radium implantation or diathermy in seventeen; the first stage of ureteral transplantation preparatory for cystectomy in six cases; total cystectomy in two cases. All eight of these cystectomy patients have died.

Resections were performed in eleven of the patients with infiltrating papilloma. Nine are known to be dead, the longest period of survival being five years. Two were alive at last note; one two years, and the other six months, respectively. In ten infiltrating papillary tumor patients cystotomy was performed, and radium seeds implanted after diathermy six times, and diathermy alone was applied in four. Of the latter patients three are dead and one living now about one year; of the former, four are dead, one living almost two years, the others dying within the year; two were alive at last note but less than one year. In five, patients with extensive involvement, the first stage of radical cystectomy was attempted; all are dead.

Of the eleven patients having flat sessile tumors, two patients were treated by cystotomy with radium, one with diathermy, seven by radical surgery, and one patient was not treated. The first lived four and one-half months, the second one month, and the untreated patient two weeks. Of the seven surgical patients, four had resection (with reimplantation of the right ureter in two, of the left ureter in one, and of both ureters in one). In two patients the ureters were not transplanted, and in one a total cystectomy with abdominal drainage was performed. Duration of life in the five patients known to be dead was respectively, nine years in one, (who was cystoscoped about six months before death and seen to have a recurrence into which radium was implanted unsuccessfully), and two years, one year, and six months in two. Two patients died post-operatively on the first and second day and two patients were living when last heard from, two months and two years after operation.

#### THE TECHNIQUE OF BLADDER SURGERY

There are three objectives of surgery of tumors of the bladder: first, operation for the complete

removal of the tumor either by resection of the involved portion of the bladder wall with a wide margin of healthy bladder, or by radical cystectomy with ureteral transplantation; second, operation for the open treatment of tumors either with direct radium implantation or by massive diathermy; and third, operation for relief of the urinary obstruction and other abnormalities. The first method is radical; the second, therapeutic; and the third, a palliative type of surgery. For purposes of discussion the three may be outlined as follows:

TABLE 3.—*Surgical Treatment of Tumors of the Bladder*  
Personal Cases

I. Operation for Removal of Tumor:	
1. Resection	
a. Without ureterocystoneostomy.....	14
b. With ureterocystoneostomy .....	5
2. Cystectomy with:	
a. Suprapubic ureteroneostomy .....	2
or In two stages, the first stage being:	
b. Lumbar nephrostomy.	
or c. Ureterorectoneostomy (or both).....	5
The second stage, the removal of the entire bladder, vesicles, and prostate.	
II. Operation for Treatment of Tumor:	
1. Cystotomy:	
a. With diathermy and fulguration.....	11
b. With radium implantation .....	6
c. With snare removal or curettage and a. b.	
III. Operation for Relief of Urinary Obstruction:	
1. Cystotomy drainage.	
2. Nephrostomy drainage .....	1
3. Ureterorectoneostomy.	
	44

#### COMMENT ON DIFFERENT METHODS

It would hardly be indicated to give in detail each of the surgical steps of these procedures, but the writer would like to emphasize three steps which a review of his own experience leads him to believe as of the utmost importance in relation to operative mortality. The high mortality that follows surgery of bladder tumors is not due altogether to the condition it fails to alleviate. The present review of the writer's own cases convinces him that inherent defects of the surgery itself are somewhat responsible. One opens the bladder and removes a benign prostate with an operative mortality of around five per cent. Barringer opened the bladder for simple radiation with a mortality of three per cent; but Edwin Beer reports a 33 per cent operative mortality after radium implantation through simple suprapubic cystotomy, and a 21 per cent mortality after radical resection. Just what is the operative mortality of bladder tumor surgery is very difficult to estimate, and it is unfair to compare figures too closely. Everybody analyzes his own cases differently, and no two individuals will use a uniform classification. The trauma, spread of infection, locally with dependent pockets of poor drainage, and upward to the kidneys because of ureteral obstruction, as well as prolongation of operation in cases of resection, as compared to simple cystotomy for radiation or diathermy, make of the objective of removal a much graver surgical procedure than that of open treatment or of urinary drainage. But in this connection it must be understood that many cystotomies are not simple cystotomies because in the beginning the bladder was opened for resection and more or less extensively immobilized before the inoperability of the tumor was discovered. Diathermy or radium were then

applied as a substitute. The surgical trauma and difficulties of proper drainage are just as great or greater in this type of cystotomy as in resection and, therefore, so is the risk. Neff has emphasized this point by advocating delay in opening the bladder after suprapubic exposure so as to minimize spread of infection, and the low operative mortality reported by Barringer and Keyes must be compared to higher reports in the light of their cases being, as a rule, much better surgical risks since they elect open radiation for the majority of bladder tumors irrespective of type.

#### UNFAVORABLE FACTORS IN BLADDER SURGERY

As a leading factor against recovery in any bladder surgery is the frequency of ureteral abnormality either before operation—the most frequent position of vesical neoplasms being in the region of the ureteral orifices—or after operation, a majority of resections having necessitated reimplantation of one or both ureters. Pyelonephritis is often the silent burden that brings defeat. Preliminary nephrostomy offers little in the way of prevention in these advanced cases of cancer, as it means further surgery on patients already so debilitated as to be almost prohibitive surgical risks. And yet if we are to continue surgical attacks upon vesical cancer, this factor of ureteral obstructive and back-pressure pyelonephritis, as a complication either of the condition or of the surgery, must be recognized and combated. Of our own nineteen patients for resection in bladder cancer, one died of embolism on the fifth day, one of pneumonia on the ninth, and one on the forty-fifth of general sepsis, an operative mortality of 15.8 per cent. Of the seventeen cystotomy patients, four died in the hospital (on the sixth, eleventh, twenty-sixth and thirty-fifth days), a surgical mortality of 23.5 per cent. Of the eight first and second-stage cystectomies, six cent. In only two of these last patients was the patients died in the hospital, a mortality of 75 per bladder removed, one patient living six months. The other six patients had advanced bladder cancers with obstructed ureters in whom surgery was advised as palliation more than cure. A majority of the above postoperative deaths were autopsied, and the striking findings in practically all were pyoureters, pyonephrosis, or pyelonephritis.

Face to face with the above discouragement, only two paths are open, either to admit that surgery is useless and rely altogether upon fulguration and radiation or, still believing in it, to revise and perfect our present methods. It is fair to take this much consolation—that all the above forty-four surgical cases were extensive or advanced infiltrating type tumors, the majority in individuals over fifty-five years of age, and that the two longest survivals of the extensive infiltrating tumors were after resections; one patient living five years and another nine years. There are a few patients living, but not heard from. Furthermore, radium in our hands was not of any material help or benefit in these deeply infiltrating tumors. No patient survived its use longer than one year. The writer has no faith in radium for this type of case. Nor do the statis-

tics of others give him any hope; but, in spite of a row of surgical failures, he believes that where fulguration fails and the tumor is at all resectable, it should be resected. If not resectable, cystectomy is in order if at all feasible. If cystectomy is out of the question, the simplest thing that will make the patient the most comfortable should be done (palliation). The writer believes that we are a long way from a perfect technique for radical bladder surgery, just as we are in the case of the malignant prostate. The difficulty in each is ureter transplantation. Coffey's recent contributions to the technique of uretero-intestinal transplantation are very encouraging in this connection. A safe diversion into the bowel with control of urinary sepsis would certainly open up possibilities of radical removal of the whole lower tract, bladder, prostate, vesicles, and all. Not to be misunderstood, it should be stated here that the above group of infiltrating tumors that have been subjected to operation are the radio-resistant type of tumor. Some papillary infiltrating tumors are highly radio sensitive, and whether or not they should be treated by radium endovesically or by open cystotomy with radium implantation or, when accessible, by radical resection, are questions to be settled open-mindedly. Broder's classification gives promise of value, since most tumors graded III and IV have been found by Barringer to be radiosensitive, but the microscopic grading of tumors is unreliable, so that the only safe guide, after all, is the cystoscope. When to use x-ray is another problem. A working plan of treatment that conforms to our present knowledge of results, and that will act as a guide as to when to operate, is outlined in Diagram No. 2.

#### DIAGRAM 2.—Plan of Treatment

- I. Papillary Tumors:
  - First—Fulguration.
  - \*Second—Pathology.
  - Third—Surgery for tumors graded I and II. Radiation for those graded III and IV.
  - \*Fourth—Surgery.
- II. Pedunculated Tumors:
  - First—Pathology.
  - Second—If benign, nothing or surgery. If sarcoma, radiation or surgery when possible. If adenocarcinoma (secondary), radiation or palliation.
- III. Sessile Tumors:
  - First—Pathology.
  - Second—If epithelioma, surgery or palliation. If adenocarcinoma (secondary), radiation or palliation.

(\*If ineffectual.)

#### COMMENTS ON SURGICAL TECHNIQUE

Should operation be selected as the method of treatment, preparation on the same principles and for the same reasons as before prostatectomy should be carried out. Initial nephrostomy or cystotomy may be required in order to restore renal function. If the patient fails to survive these therapeutic procedures, he most certainly would have died of the more extensive operation of which they are in preparation. At the time of operation the two factors that influence, more than anything, its ultimate success or failure are patency of the ureters and pelvic drainage. Autopsies of patients dying after extensive bladder operations show a preponderance of renal infections and of retention abscesses in the pelvis. It

is a safe policy to place in all reimplanted ureters large retention catheters that lead out suprapubically so as to maintain ureteral patency during the early days of convalescence as well as enable antiseptic lavage of the renal pelvis. For the same reasons retention ureteral catheters are indicated after extensive radiation or diathermy, whether endo- or transvesically, of tumors located in the region of the ureteral orifices. A combined suprapubic and perineal attack will secure better and dependent drainage as well as through-and-through irrigation for all extensive resections as well as cystectomies. Preliminary to suprapubic incision the patient is placed in the lithotomy position, the legs being held by assistants or nurses, and through a lateral perineal incision the space alongside the rectum and prostate (or vagina in the female) between levator ani and transversus perinei is opened up by blunt finger dissection and a good-sized tube or urethral catheter is inserted and secured here. Later extraperitoneal freeing of the base of the bladder exposes the inner end of this tube which may be used for drainage or the end of another tied to it for retrograde placement.

#### SUMMARY

It is fair to expect that attention to these three factors, (1) preparation of the patient; (2) ureteral patency and renal infection; and (3) dependent perineal drainage will reduce the present operative risk of resection from 15 or 20 per cent to 5 per cent. The conclusions to be drawn by this review of cases and operative experience may, therefore, be summarized as follows:

1. Bladder tumors may be classified cystoscopically as papillary, pedunculated or sessile tumors.

2. All papillary tumors should have initial fulguration. Fortunately the majority of papillary tumors seen early disappear under fulguration. If ineffectual, the pathology of the tumor will determine the next step. Highly malignant papillary tumors (graded III or IV) not destroyed by fulguration should have radiation and, if ineffectual, radical surgery. Less malignant growths (graded I and II) not destroyed by fulguration should have surgery. It is an open question whether all tumors that fail to disappear under fulguration, irrespective of pathology, located in an accessible position, should not be immediately resected.

3. Pedunculated tumors are rare and are either benign or are sarcomata or secondary adenocarcinomata. Knowledge of the pathology determines the line of treatment.

4. Sessile tumors are always malignant and almost always radio-resistant. Surgery is indicated except in those adenocarcinomata secondary to growths of neighboring organs.

5. All patients to be operated should have preparation on the same principles that are recognized as essential in the preparation of patients for prostatectomy. Nephrostomy or retained ureteral catheter may be required.

6. Ureteral retention catheters should be used during convalescence whenever indicated.

7. Combined suprapubic and perineal drainage is indicated in all extensive bladder surgery.

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#### DISCUSSION

BENJAMIN H. HAGER, M. D. (1136 West Sixth Street, Los Angeles).—Doctor Hinman's analysis of the treatment of bladder neoplasms is in reality an enviable record. It is so thorough that I can but emphasize a few of the principles which have a bearing on cure and life expectancy.

It is regrettable that there is to date no universal nomenclature that suffices to catalogue with any degree of uniformity the gross and microscopic interpretation of kinds and degrees of malignancy. However, the American Urological Association is now engaged in obtaining complete histories and clinical findings, together with microscopic sections of all bladder tumors, in an effort to establish a more accurate and uniform description and to evaluate the end-results of the various forms of treatment. It behooves all those interested in the subject to aid this cause by complying with the requests made by the committee.

We support the belief that all bladder neoplasms should be regarded as malignant. The malignant aspects may not be conspicuous, but metastases have been observed as arising from primary bladder growths, which growths, in terms of textbook description, would come under the category of benign papillomata. It seems obvious, therefore, that some plan of cellular differentiation should be adopted, as clinical experience bears out the contention that tumors differ materially in their degree of malignancy, as demonstrated by their manner of growth and reaction to therapeutic measures.

I should like to emphasize the importance of biopsy at the time of cystoscopy. Most bladder neoplasms are easy of recognition. However, it is not infrequent that ulcers, granulomas, and particularly the infiltrating carcinomas, are extremely protean in their appearance, and diagnosis is made only by biopsy. Our experience does not sustain the view that removal of tissue for diagnosis predisposes to metastasis. Frater's elaborate studies have enhanced the value of biopsy. He has demonstrated that epitheliomas of the bladder do not show variation in grade of malignancy in different parts of the tumor. He also observed that with few exceptions malignancy does not increase with recurrence.

It follows, therefore, that, in general terms, the degree of malignancy is more often the criterion of the amenability to treatment than the site and extent of the tumor. As a matter of interest the more malignant lesions have a predilection for the most inaccessible areas from the standpoint of treatment. This is illustrated by the high-grade squamous cell epitheliomas, which occur most frequently in the base or trigone or surrounding the internal sphincter. The review of a large series of bladder neoplasms would indicate that about 95 per cent are epitheliomas. The majority of these are papillomas. It is obvious, therefore, that the great majority of bladder neoplasms are suitable for transurethral electrocoagulation, if they were recognized in the early stages of the disease. Papillomas are like warts; they tend to recur and appear usually, not at the site of the original tumor, but scattered over the bladder mucosa. The high-grade squamous cell epitheliomas and adenocarcinomas tend to recur at the site of the original growth. A cystoscopic examination at intervals, following the destruction of the bladder tumors, is imperative to insure against extensive recurrence.

What was said of the lack of uniformity of pathologic description applies equally well to the treatment. Our present-day armamentarium is limited to transurethral electrocoagulation, suprapubic electrocoagulation or surgical diathermy, segmental resection, actual cautery and radium. When the lesion is small and of low-grade malignancy, transurethral electrocoagulation is the treatment of choice. It is remarkable how extensive an epithelioma may be and still

yield to repeated transurethral electrocoagulation. When the lesion is extensive though of low-grade malignancy, suprapubic exposure with the application of actual cautery or surgical diathermy is advisable. Highly malignant tumors, regardless of extent or location, which permit of resection should be so treated. Surgical diathermy has been the treatment of choice in dealing with highly malignant tumors involving the base, trigone and external sphincter. Radium is probably best used as a palliative measure when extensive resection or surgical diathermy is contraindicated. While the use of radium has not been entirely satisfactory, some remarkable results have followed its use. It should not be used in preference to electrocoagulation or resection when they are feasible. Deep x-ray treatment should not be substituted for any of the previously mentioned methods of treatment, as the value of x-ray treatment in bladder malignancy is very doubtful. It is obvious that before any radical treatment is instituted metastasis should, in so far as possible, be excluded by a thorough physical examination and x-ray examinations of the chest, vertebrae, and pelvic bones.

Hinman's results are similar to those obtained by authorities throughout the world, and his experience again emphasizes the importance of recognizing early those symptoms which presuppose bladder malignancy. Better an unnecessary cystoscopic examination by a competent urologist than to wait for the layman's diagnosis. The good results of the future probably will not be so much dependent upon the perfection of present-day therapeutic principles or the innovation of new procedures as in the early recognition of the disease.

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JAMES F. PERCY, M. D. (1030 South Alvarado Street, Los Angeles).—The more I see of present-day discussions of the treatment of cancer in general the more I am amazed that a surgeon of Doctor Hinman's standing in urology would or could write a paper on malignancy of the bladder without once mentioning in its treatment the most important and reliable of all methods so far devised, viz., the heat-carrying cautery. He suggests that we attempt to draw distinctions between radio-sensitive and radio-resistant malignant bladder tumors, forgetting or ignoring that when either of these horns of his dilemma is finally recognized, the patient's malignancy has increased, both in extent and virulence, to an untreatable degree. More than this, I repeat, when he finally decides that fulguration and radioactive agents have failed, his patient is no longer a fit subject for the "useless" surgery he so reluctantly recommends. It is a matter for serious consideration to inquire as to when those who ignore the heat treatment of cancer will learn that when they have applied the limit of tissue toleration of radium and x-ray they have shot their longest bow, and the patient, if his growth does not recede, as it usually does not, is fit for nothing further than medical palliation.

When the cautery is applied we do not have to talk about heat "resistant" malignancies. There is no such tissue, for all cancer cells die when heated to 113 degrees Fahrenheit (45 C.) for ten minutes. As much can be said in condemnation of the cold knife resection of the cancerous bladder. It always increases the risk of an easy and early dissemination of the disease, stimulating it into new virulence and, as well, leaving a surface on which it will grow again. None of these things can be claimed against any sufficient heat infiltration or cautery resection of the malignant bladder.

It is my misfortune to see some of these patients with recurrences in the bladder after they have been treated by fulguration, to say nothing of the other methods mentioned by Doctor Hinman. I see a much larger number of recurrences where these same methods have been employed to destroy surface malignancies. When they come I frequently ask myself: "If recurrences develop on the surface of the body, following the employment of fulguration where the problem is easily accessible—all out-of-doors, so to speak—how can one expect good results by the same

methods applied indirectly through a long magnifying tube into the depths of a dark cavity in a thin-walled more or less mobile membranous sac such as the bladder?" In all the history of surgery no method, where the technique cannot be applied by direct vision and tactile sense, has persisted in the favor of surgeons for very long.

That fulguration does cure some cases of bladder malignancies I have no doubt, for the reason that any treatment, no matter how bizarre, will cure cancer, *sometimes*. All of which merely emphasizes that we know nothing fundamental or worth while about this disease. That fulguration will cure a larger number of bladder carcinomas than infiltration of heat from the cautery through the open bladder, is an unfortunate statement which I earnestly challenge.

One of the, to me, serious mistakes in Doctor Hinman's technique is covered by his statement that "persistent repeated endovesical fulguration will often accomplish more than massive transvesical fulguration or diathermy." This is when I see some of these patients with their malignancy stimulated into new virulence by "repeated" applications of the frail, weak, feeble, meager, insignificant (when compared with the nature of the problem attacked), and completely inadequate sparking needle that is the instrument of election in this method. The first operation is the only real chance the surgeon has to destroy a malignant growth, and he cannot do it successfully the greatest number of times when seeing but a part of his problem through a small instrument such as the cystoscope while working in a great cavity. Every subsequent attempt at destruction must carry with it a certain accumulating geometrical ratio of failure. Fulguration in the treatment of cancer of the bladder except, possibly, in the most minor growths, is equivalent to asking a surgeon to go after a hippopotamus with the bean shooter of his boyhood days. It is this inadequate attempt at thoroughness with insufficient measures that will account, at least in part, for many otherwise preventable failures in the treatment of cancer of the bladder.

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R. L. RIGDON, M. D. (909 Hyde Street, San Francisco).—The paper of Doctor Hinman is in line with the high type of work we have come to associate with his name. The doctor has done what so many of us fail to do, namely, carefully studied and recorded his observations and findings. It is only by methods such as these that real advances can be made in any of the problems that confront us.

In my experience there are but two classes of bladder tumor that need be considered in determining treatment: (1) the type that can be benefited by means of work done through the cystoscope, and (2) the type which cannot be so benefited. In examining a bladder cystoscopically, it is not wise to attempt a too definite classification; the tumor can or cannot be benefited by endovesical methods. If it is possible to cure by local methods, those should be employed regardless of the type.

Between these two extremes there is a shading group that may or may not respond to local treatment. My feeling is that any tumor that offers any hope of cure should be subjected to thorough fulguration. The result of this procedure will be very soon manifest, and very often complete cure or marked alleviation will be indicated. Repeated fulgurations, at intervals determined by cystoscopic examinations, will take care of these tumors in a most satisfactory manner. I am sure all of us have patients who consult us at intervals, on whom we have removed tumors by the electrocautery method and there has been no recurrence over a period of years.

There is another group in which recurrences are seen at longer or shorter intervals. By examining these patients at stated intervals, these recurring growths can be detected and treated very early and thus kept under control. There is practically no operative mortality. The patient is subjected to an inconvenience, it is true, but the relief afforded is so great that the inconvenience can be disregarded. Practically every tumor that is not obviously beyond

help should be given the benefit of fulguration; if this fails it is time to try other methods.

The second group of tumor is altogether a different matter. The line of treatment chosen must be individual. I think it is a mistake to paint too gloomy a picture of surgery, for every now and then the resection of a circumscribed growth, even though located at the base of the bladder, is successful in eradicating the tumor, at least for many years. If the tumor is circumscribed I am sure its removal by surgery should be undertaken. If transplantation of the ureter is required, this should be done. There is a certain degree of mortality attached to this operation, but when we remember that we are dealing with a deadly enemy we are justified in recommending to the patient an operation, in the face of all the risk involved.

Those tumors that are sessile, widespread and infiltrating, are practically hopeless of relief. In these patients I believe we can justify ourselves in attempting any form of treatment or no treatment. Radiation may be tried, and this I certainly recommend. Resection may be attempted or total cystectomy. The Percy cautery may be our salvation. We know in the beginning that we are dealing with a fatal malady and that the only chance, if any, for the patient is by operation.

At the present time, unless there are strong contraindications, I believe the Coffey method offers the best means of relief. This method of treatment is radical and difficult, especially in the hands of inexperienced operators, but Doctor Coffey has developed the technique to such a point that it may be hopefully undertaken. It is for the surgeon to perfect his technique or to call to his assistance someone who has comprehended the fundamental problems involved and has developed the necessary skill to perform it.

#### DISCIPLINE OF THE LICENSED PRACTITIONER\*

By PERCY T. PHILLIPS, M.D.  
*Santa Cruz*

DAVID HARUM, from the wisdom of his worldly contacts with the cussedness to which man is prone, credited our weaknesses to the fact "that we all have as much human nature as others, if not more." Medical boards are faced at times with the unpleasant problem of dealing with the sinful nature of those licensed practitioners who have offended against the ethics of our profession and the state laws governing the practice of medicine.

There are two considerations we must have in mind in dealing with such offenders. First, they must be restricted or eliminated as in the judgment of the board seems best, so that their further activities will not jeopardize the welfare and health of the commonwealth. Second, they must be punished to the extent which a deliberate offense would warrant.

All procedure in matters of discipline should be conducted in such a manner as to demonstrate to the profession that the primary object is to conserve the rights and health of the public and not to see how severely the individual be punished. We must endeavor to make the punishment a reasonable one and, if possible, one that will give the offender another opportunity if he profits by the discipline meted out to him. In this way medical boards earn the good will and confidence of their

fellow physicians over whom they are given temporary control by political appointment. The board, too, must conduct its activities in a way to convince the public that during times of sickness and trouble none shall presume to give advice and medical treatment except he be honorable and proficient.

#### CREATION AND POWERS OF BOARDS

Before proceeding with the consideration of those special problems in discipline confronting boards, I am going to recapitulate the principles as expounded in law, creating boards of medical examiners and conferring on them such powers as are considered necessary and advisable in the performance of their duties; namely, issuing the license that certifies to the qualifications of one who aspires to the treatment of the sick and afflicted and confers upon him the right to pursue his activities in his profession in the commonwealth in which he lives. Second, to discipline those licensed individuals who, by their conduct, are forgetting that a privilege with its attendant responsibility has been given them and are conducting their activities in such a manner as to be prejudicial to the health and well-being of the citizens of the state.

In this address I shall quote extensively from the "Cyclopedia of Law and Procedure" and give excerpts from citations therein contained without, in each instance, identifying the decision or opinion cited:

"License, in its general sense, means a right or permission granted by some competent authority to do what is unlawful at common law, or is made so by statute or ordinance, including the one authorizing or requiring the license. A privilege is the exercise of an occupation or business which requires a license from some proper authority, designated by some general law, and not free to all, or any, without such license. It follows that an occupation or privilege license is the permission granted to an individual by a competent authority to engage in and carry on the particular business or calling to which it refers."

Whether a license to practice medicine is a property right and is to be treated under the law as such is a question in law that as yet seems undecided. Courts have rendered divergent decisions. The legal definition of a property right is as follows:

"The right of property consists in the free use, enjoyment and disposition of all a person's acquisitions without any control or diminution save only by the law of the land; the right to acquire power and enjoy it in any way consistent with the equal rights of others and the just exactions and demands of the state."

We know that while a license to practice medicine is a revokable privilege it is the most valuable possession of a physician and should ever be appreciated and treated as such. It is based on two primary requirements; namely, scientific attainment and good moral character. No one may deprive himself or be deprived of his scientific attainment except through the wilful impairment of his mental faculties. He may deprive himself and be deprived of his moral character by perverting his knowledge to illegitimate uses and by violating in any manner the general laws promulgated for the conduct of an individual in society. The technical question of the property

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